

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte JUNICHI SHUDO  
MITSUHIKO FUKUDA and MASATO SAKAI

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Appeal No. 1997-0317  
Application 08/160,275<sup>1</sup>

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HEARD: October 06, 1999

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Before HAIRSTON, HECKER and GROSS, Administrative Patent Judges.

HECKER, Administrative Patent Judge.

DECISION ON APPEAL

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<sup>1</sup>Application for patent filed December 02, 1993.

This is a decision on appeal from the final rejection of claims 1 through 6, all claims pending in this application. The invention relates to a print head having a plurality of driver ICs. Each driver IC includes a data input for inputting print data for each dot in series and a shift register being connected to the data input for transferring input print data in sequence. The shift register has an output for outputting print data stored at the last bit of the shift register and additional data outputs for outputting print data stored at an intermediate bit of the shift register. The driver ICs are cascaded by using the data output or an additional data output.

The additional data output enables the number of bits of the driver IC to be changed. For example, if a 96-bit shift register is contained on the IC and an additional data output is provided at the 32nd and 64th bits, the number of bits of the driver IC can be set to 96, 64, or 32 for use, depending upon how many dots exist on one print line. Prior art driver ICs contained shift registers without the

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additional data outputs.

Representative independent claim 1 is reproduced as follows:

1. A print head having a plurality of driver ICs, each driver IC including:

a main body;

a data input terminal formed on said main body, connected to input print data for each dot in a sequence;

a shift register formed on said main body to have at least a first cell, an intermediate cell and a last cell, said first cell being connected to said data input terminal, said print data being shifted to pass through said first cell, said intermediate cell and said last cell in sequence;

output pins formed on said main body and connected to said shift register, for outputting said print data stored in said shift register to print means in parallel;

a data output terminal, formed on said main body and connected to said last cell for outputting said print data from the last cell;

an additional data output terminal formed on said main body to be connected to the intermediate cell for outputting said print data from the intermediate cell; and

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a connection wiring, formed from one of said data output terminal or said additional data output terminal to communicate said print data.

The Examiner relies on the following reference:

IBM Technical Disclosure Bulletin, Vol. 28, No. 7, pp. 2769-2772, December 1985

Claims 1 through 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Appellants' Admitted Prior Art (AAPA) in view of the IBM Technical Disclosure Bulletin (IBM).<sup>2</sup>

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the brief, reply brief and answer for the respective details thereof.

#### OPINION

After a careful review of the evidence before us, we

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<sup>2</sup> A rejection of claims 3 through 6 under 35 U.S.C. § 112, second paragraph, was withdrawn by the Examiner in the Examiner's Answer at page 3.

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will not sustain the rejection of claims 1 through 6 under  
35 U.S.C. § 103.

The Examiner has failed to set forth a ***prima facie*** case. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions.

In re Sernaker, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." Para-Ordnance Mfg. v. SGS Importers Int'l, Inc., 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (citing W. L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)).

With regard to the rejection of claim 1, Appellants argue:

As to the combination of the two references [AAPA and IBM], it is improper to combine the

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teachings of the admitted prior art and the IBM reference because one of ordinary skill in the art at the time Appellants' invention was made would have had no motivation to make such a combination. One of ordinary skill in the art would not have used the barrel shifter of the IBM reference in the print head of the admitted prior art because the barrel shifter serves an entirely different purpose (manipulating a set of data by shifting the data left or right by a desired number of bits) from the purpose of the shift registers/driver ICs of the admitted prior art (serially transmitting data for eventual parallel output)....Similarly, the IBM reference provides no indication that the barrel shifter recited therein could have been used in implementing a print head or a driver IC. (Brief-pages 9 and 10.)

The Examiner contends that the purpose of combining the references would be for "enhancing shifting speed between registers." (Answer-page 5.)

We agree with Appellants. There is no motivation in the AIPA to look for a barrel shifter or any other adjustable length shift register other than using the hindsight of Appellants' improvement. Surely, there are many adjustable length shift registers in the prior art, but the only suggestion of its desirability in a print head is found in Appellants' specification, and not under the heading of "prior

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art".

On the other hand, IBM gives no inkling of its use in a print head. Looking at IBM, we only find suggestions of use for multiple-bit position shifting, exponent incrementing/decrementing, and final cycle output signal.

The Examiner's purpose for combining, "enhancing shifting speed", is found in neither reference and is not seen as a motivation to combine.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification."

In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d at 1087, 37 USPQ2d at 1239, citing W. L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13.

Since there is no evidence in the record that the

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prior art suggested the desirability of the combination, we will not sustain the Examiner's rejection of claim 1.

The remaining claims on appeal also contain the above limitation discussed in regard to claim 1, i.e. an additional data output terminal, and therefore, we will not sustain the rejection as to these claims.

We have not sustained the rejection of claims 1 through 6 under 35 U.S.C. § 103. Accordingly, the Examiner's decision is reversed.

REVERSED



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Administrative Patent Judge	)
	)
	) BOARD OF
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Stuart N. Hecker	) PATENT
Administrative Patent Judge	)
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